

CLAIMS

We claim:

1. A signal testing system for evaluating wireless communication signals transmitted between a base station and a communication site, said signal testing system comprising:
 - an antenna located at said communication site for communicating said wireless communication signals between said base station and said communication site;
 - an adjustable mount associated with said antenna for orienting said antenna in a plurality of pan orientations and a plurality of tilt orientations;
 - an adjustable boom associated with said adjustable mount for positioning said antenna at a plurality of heights; and
 - a communication unit to measure characteristics of said wireless communication signals,wherein said adjustable mount is fixed in a set pan orientation of said plurality of pan orientations and a set tilt orientation of said plurality of tilt orientations and said adjustable boom is fixed at one of said plurality of heights when said communication unit measures said characteristics of said wireless communication signals.
2. A wireless testing system as claimed in claim 1, wherein said testing system receives wireless communication signals sent downstream from said base station to said testing system, said antenna receives said wireless communication signals and said communication unit receives said wireless communication signals from said antenna and measures characteristics of said wireless communication signals.

3. A wireless testing system as claimed in claim 1, wherein said testing system transmits wireless communication signals sent upstream to said base station from said testing system, said communication unit generates said wireless communication signals, said antenna transmits said wireless communication signals to said base station and said communication unit measures characteristics of said wireless communication signals.

4. The wireless testing system as in claim 1, wherein said communication unit comprises a signal measurement device to measure characteristics of said wireless communication signals communicated with said base station; and a modem to process said wireless communication signals communicated with said base station.

5. A wireless testing system as claimed in claim 4, wherein said signal measurement device is a signal analyzer integrating power signals around frequencies associated with said wireless communication signals.

6. A wireless testing system as claimed in claim 5, wherein said modem is a network interface unit.

7. The wireless testing system as claimed in claim 6, wherein said communication unit further comprises a coupler connected to said antenna to direct said wireless communication signals and

wherein said signal measurement device is connected to said coupler and said modem is connected to said coupler.

8. A wireless testing system as claimed in claim 7, wherein said testing system transmits said wireless communication signals sent upstream to said base station, said modem generates said wireless communication signals, said wireless communication signals are provided to said antenna, said antenna transmits said wireless communication signals and said signal analyzer measures characteristics of said wireless communication signals.
9. A wireless testing system as claimed in claim 7, wherein said testing system receives wireless communication signals sent downstream from said base station to said testing system, said antenna receives said wireless communication signals, said wireless communication signals are provided to said modem and said signal analyzer unit measures characteristics of said wireless communication signals.
10. A wireless testing system as claimed in claim 1, further comprising a controller to orient said mount in one of said plurality of pan orientations and one of said plurality of tilt orientations.
11. A wireless testing system as claimed in claim 1, further comprising a bracket attached to said antenna, said bracket allowing the positioning of said antenna at a plurality of angles along a plane to change a polarity of said wireless communication signals sent between

said base station and said wireless testing system, said plane determined by said pan position and said set tilt position of said mount.

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12. A wireless testing system as claimed in claim 7 further comprising an attenuator in said communication unit to selectively attenuate said wireless communication signals to produce attenuated signals simulating attenuating effects of ambient atmospheric and meteorological conditions around said communication site.
 13. A wireless testing system as claimed in claim 12 wherein said attenuator provides said attenuated signal to said coupler.
 14. A method of evaluating wireless communication signals communicated between a wireless testing system and a base station, said wireless testing system comprising an antenna for communicating said wireless communication signals with said base station, an adjustable mount associated with said antenna for orienting said antenna in a plurality of pan orientations and a plurality of tilt orientations, an adjustable boom attached to said adjustable mount for positioning said antenna at a plurality of heights and a communication unit associated with said antenna, said method of evaluating wireless communication signals comprising:
 - positioning said antenna at a set height of said plurality of heights, at a set pan of said plurality of pan orientations and at a set tilt of said plurality of tilt orientations; and

evaluating said characteristics of said wireless communication signals by integrating power signals of said wireless communication signals across a frequency band associated with said wireless communication signals.

15. A method of evaluating wireless communication signals as claimed in claim 14, further comprising variably attenuating said wireless communication signals before evaluating said characteristics of said wireless communication signals to simulate ambient atmospheric and meteorological conditions around said wireless testing system.

16. A method of evaluating wireless communication signals as claimed in claim 14, further comprising evaluating said characteristics of said wireless communication signals transmitted by said wireless testing system to said base station.

17. A method of evaluating wireless communication signals as claimed in claim 14, further comprising evaluating said characteristics of said wireless communication signals received by said wireless testing system from said base station.

18. A method of simulating ambient atmospheric and meteorological conditions for a wireless communication system using a wireless testing system, said wireless testing system comprising an antenna for communicating said wireless communication signals with said base station, an adjustable mount associated with said antenna for orienting said antenna in a plurality of pan orientations and a plurality of tilt orientations, an adjustable boom attached to said adjustable mount for positioning said antenna at a plurality of

heights, a signal measuring device associated with said antenna and a signal attenuator associated with said antenna, said method comprising:

positioning said antenna at a set height of said plurality of heights, at a set pan orientation of said plurality of pan orientations and at a set tilt orientation of said plurality of tilt orientations; and
evaluating characteristics of said wireless communication signals transmitted by said base station and received by said signal measuring device;
attenuating said wireless communication signals until said signal measuring device no longer receives said wireless communication signals transmitted by said base station;
calculating said atmospheric and meteorological conditions corresponding to said amount of attenuation based on the distance between said antenna and said base station; and
comparing said calculations of said atmospheric and meteorological conditions to a predetermined threshold level required to maintain a level of service required for communications with said base station when said atmospheric and meteorological conditions exist;

wherein, if said level of attenuation exceeds said threshold level, said antenna placement at said communication site is acceptable.

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